

Appln No. 10/613,166
Amdt date September 6, 2006
Reply to Office action of July 27, 2006

REMARKS/ARGUMENTS

Claims 1-41 are pending.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include references character(s) not mentioned in the description: e.g. Fig. 1B, element 12 and Fig. 2B, "Run Jtest". The specification is amended to include reference numerals 12 in FIG. 1B and "Run Jtest" in FIG. 2b. No new matter is added. In view of the above amendments to the specification, it is respectfully requested that the above objections be withdrawn.

Claims 1-26 [sic] are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al. (US 2004/0143819) in view of Chen et al. (US 2005/0102660). Applicant submits that all of the claims currently pending in this application are patentably distinguishable over the cited references for the following reasons, and reconsideration and allowance of this application are respectfully requested.

Independent claims 1 and 14 include, among other limitations, "executing a plurality of software verification tools to verify the computer software, wherein each of the plurality of software verification tools has a verification scope and automatically generates one or more test cases," "processing the verification results for generating an objective criterion of quality of the computer software," and "customizing the verification scope of one or more of the plurality of verification tools responsive to the objective criterion of quality of the computer software." None of the cited references, alone or in combination, teach or suggest the above limitations.

First, with regard to the limitation of "executing a plurality of software verification tools to verify the computer software," Applicant respectfully disagree with the assertion in the Office action that Cheng teaches the limitation. Rather, the "generic software testing" system of Cheng runs a single test and not "a plurality of different software verification tools." This is clear by the description in Cheng. For example, in paragraph [0028], lines 6-10, Cheng describes "a comparator 300, [for] providing a testing engineer 19 to edit a test plan and to generate a test-result template 40 for the respective objectives of a module functional test or a system integration test by using class-diagram related data 10 as a basis." In other words,

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Cheng's system is designed to run a single test; either a module functional test or a system integration test.

Cheng emphasizes the singularity of his test module again in paragraph [0041], line 304: "wherein the test can be a software unit test or a software system test," and in paragraph [0057]: "For the software unit test, the testing target is the class diagram inside the software unit, and the testing script is the sequence diagram depicting the dynamic behavior of the software unit. For the software system integration test, the testing target is the I/O interface definition of each software unit, and the testing script is the sequence diagram depicting the communication structure among the software units." (Paragraph [0059], lines 4-11, underlining added.).

As the Examiner agrees, Chen (the second cited reference) does not cure the above deficiency of Cheng.

Second, regarding the limitation of "wherein each of the plurality of software verification tools has a ["customizable"] **verification scope**," Cheng fails to disclose this limitation. The specification defines the "verification scope as:

One or more scope parameters in the shared configuration file can be changed based on the determined objective criterion of the quality of the computer software. In other words, the verification scope of one or more of the verification tools can be customized based on the verification results from execution of the verification tools on the entire code. This provides a feedback loop that improves the quality of the verified code.

Page 14, lines 16-21.

The Office action cites "Fig. 1. element 60 and related text" for teaching this limitation. However, element 60 is simply a "test report" generated by comparing the test results 50 and the expected values in the template 40. (paragraph [0028], lines 16-18).

Likewise, the test-plan execution code 30 of Cheng can not be construed as the claimed "customizable verification scope," because the "test-plan execution codes 30 are generated by the test-plan wizard 100 in accordance with the class-diagram related data 10 and the sequence-

Appln No. 10/613,166
Amdt date September 6, 2006
Reply to Office action of July 27, 2006

diagram related data 20 for testing the software under test" and thus are not customizable. Again, as the Examiner agrees, Chen does not cure the above deficiency of Cheng.

Third, with regard to the limitation of "processing the verification results for **generating an objective criterion of quality of the computer software**," Cheng does not teach this limitation. The Office action cites paragraph [0012] of Cheng as disclosing this limitation. Applicant respectfully disagree. Cheng describes that "the test result 50 and the expected values in the test-result template 40 are inputted to a comparator 300, thereby making comparison to generate a test report 60." (Paragraph [0028], last line, underlining added.). The test result is the result of executing the software unit test or the software system test on the software to be tested. The "expected values" in the test-result template 40 are generated by a test engineer by editing a test plan and is used for respective objectives (goals) of "a module functional test or a system integration test by using class-diagram related data 10 as a basis." (Paragraph [0028], lines 7-10, underlining added.). Therefore, this test result 50 is simply a report by the test module on what part of the code failed the test, that is, which part of the code after being tested did not meet the expected result. This is not the same as the claimed "objective criterion of quality of the computer software."

Additionally, Chen does not cure the above deficiency of Cheng.

Fourth, regarding the limitation of "wherein each of the plurality of software verification tools . . . generates one or more **test cases**," Cheng does not teach this limitation. There is no mention of generating one or more test cases in Cheng. The test result 50 can not be construed as a "test case," as commonly understood by one with ordinary skill in the art of computer software, absent an explicit reference. Such explicit reference is lacking in Cheng.

Fifth, Cheng does not teach or suggest the limitation of "**customizing the verification scope of one or more of the plurality of verification tools responsive to the objective criterion of quality of the computer software**." As discussed above, Cheng does not disclose a "customizable verification scope," neither does it teach an "objective criterion of quality of the computer software." More importantly, Cheng does not describe any relationship between the two. Similarly, Chen does not cure the above deficiency of Cheng.

Appln No. 10/613,166
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As a result, independent claims 1 and 14 are patentable over the combination of Cheng and Chen.

Independent claim 27 includes, among other limitations, "executing a plurality of software verification tools capable of automatically generating one or more test cases for verifying the computer software; processing verification results for producing an objective criterion of quality of the computer software; and customizing a verification scope of one or more of the plurality of verification tools based on the objective criterion of quality of the computer software." As described above, the combination of Cheng and Chen does not teach or suggest the above limitation. Therefore, independent claim 27 is also patentable over the combination of Cheng and Chen.

Independent claim 32 includes, among other limitations, "executing a plurality of software verification tools for verifying the stored computer software, wherein each of the plurality of software verification tools has one or more scope parameters in a configuration file shared by the plurality of software developers, and each of the plurality of software verification tools automatically generates one or more test cases; generating verification results responsive to executing the plurality of software verification tools and utilizing the automatically generated test cases; processing the verification results for producing an objective criterion of quality of the computer software; and changing the one or more scope parameters in the configuration file responsive to the objective criterion of quality of the computer software."

As described above, the combination of Cheng and Chen does not teach or suggest the above limitation. Additionally, Cheng or Chen, alone or in combination, does not teach or suggest "changing the one or more scope parameters in the configuration file responsive to the objective criterion of quality of the computer software." Therefore, independent claim 32 is also patentable over the combination of Cheng and Chen.

Independent claim 41 includes similar limitations and is therefore also patentable over the combination of Cheng and Chen.

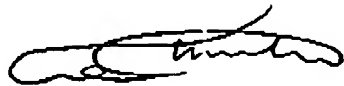
Dependent claims 2-13, 15-26, 28-31, and 33-40 are dependent from allowable independent claims 1, 14, 27, and 32, respectively and therefore include all the limitations of

Appln No. 10/613,166
Amdt date September 6, 2006
Reply to Office action of July 27, 2006

their base claims and additional limitations therein. Accordingly, these claims are also allowable over the cited references, as being dependent from an allowable independent claim and for the additional limitations they include therein.

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is now in condition for allowance, and accordingly, reconsideration and allowance are respectfully requested.

Respectfully submitted,
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